Sandy Lake First Nation (Band No. 211)

Date of Visit: March 27, 2001
Cam McIvor (OCWA)
Site Address: Via Favorable Lake
Sandy Lake, ON P0V 1V0
Phone No.: 807-774-3421 **Fax No.:** 807-774-1040
Tribal Council Affiliation: Thunder Bay Services Centre - Unaffiliated First Nations (North)
Operators: Derek Moskotaywenene, Dennis Linklater
Location: The Sandy Lake First Nation community is located approximately 225 km northwest of Red Lake
Population: 1,820 people in the community (November 2000 - INAC)
No. of Units: 533 houses in the community (CAIS)

1.0 Description of the Community Water Supply

Based on the CAIS report, water to the houses in the Sandy Lake community is treated as follows:

- 956 people use piped water
- 490 people use individual holding tanks with trucked water
- 374 people have no services

- 280 houses are serviced by a communal water system;
- 144 houses are serviced by individual water holding tanks with trucked water; and
- 109 houses are listed as no service.

2.0 Description of the Community Sewage Facilities

Based on the CAIS report, sewage from the houses in the Sandy Lake community is treated as follows:

- 956 people use piped sewage
- 497 people use septic tanks
- 367 people have no services

- 280 houses are serviced by a communal sewage system;
- 146 homes are serviced by individual septic tanks; and
- 107 homes are listed as no service.

3.0 Overall Assessment for Communal Water Treatment Supply

The questionnaire developed by PWGSC required OCWA to undertake a risk assessment of the Water Source, Design, Operation, Reporting, and Operators. To properly assess these areas, a revisit to the water treatment facilities would be required.

OCWA was requested to undertake the evaluation without a visit to the site. With the available information, OCWA has undertaken the requested assessment of the facilities.

The ranking system used is as follows:

0 = Not enough information to assess
1-4 = Low Risk
5-7 = Medium Risk
8-10 = High Risk

For more detailed information on the Risk Assessment used see the Terms of Reference, Appendix B.

SECTION Water	SECTION RANKING Water	RISK Water
A. Water Source		
Biological	0	
Chemical	0	
Physical	0	
Overall Ranking for Water Source	0	No lab data available
B. Design		
Biological	0	No lab data available
Chemical	6	Aluminum exceedance
Physical	6	Low hardness and alkalinity
Risk to Public Health	1	No risk
Condition of Laboratory Equipment	0	Not inspected
Overall Ranking for Design	5	
C. Operations		
Reservoir Cleanliness	0	Not inspected
Emergency Plan	0	Unknown
Overall Ranking for Operations	10	Chlorine residual analyzer not working, chemicals not properly stored
D. Reporting		
Ranking for Laboratories and Testing	10	No regular testing
Ranking for Boil Water Advisories	1	No boil water advisories
Overall Ranking for Reporting	6	

SECTION Water	SECTION RANKING Water	RISK Water
E. Operators		
Overall Ranking for Operators	2	Trained and confident
F. Statistical Data		
Overall Ranking for Individual Wells	0	
Overall Ranking for the System	6	Medium Risk

4.0 Overall Assessment for Communal Sewage Treatment Facilities

The questionnaire developed by PWGSC required OCWA to undertake a risk assessment of the Effluent Receiver, Design, Operation, Reporting, and Operators. To properly assess these areas, a revisit to the sewage treatment facility would be required.

OCWA was requested to undertake the evaluation without a visit to the site. With the available information, OCWA has undertaken the requested assessment of the facilities.

The ranking system used is as follows:

0 = Not enough information to assess
1-4 = Low Risk
5-7 = Medium Risk
8-10 = High Risk

For more detailed information on the Risk Assessment used see the Terms of Reference, Appendix B.

SECTION Sewage	SECTION RANKING Sewage	RISK Sewage
A. Effluent Receiver		
Overall Ranking for Effluent Receiver	0	No lab data available
B. Design		
Quality of Treated Effluent	1	No exceedances
Ranking of Design of Sewage Plant	1	
Ranking of Concerns and Hazards within the Plant	7	Storing sewage tools at water treatment plant, no backup power
Condition of Laboratory Equipment	0	
Overall Ranking for Design	3	
C. Operations		
Ranking for Emergency Plan	0	
Overall Ranking for Operations	5	Pump problems
D. Reporting		
Overall Ranking for Reporting	4	
E. Operators		
Overall Ranking for Operators	4	Some training and confidence
F. Statistical Data		
Overall Ranking for Individual Septic Tanks	0	
Overall Ranking for the Systems	5	Medium Risk

5.0 Communal Water Supply (280 houses)

5.1 Water Source

No information is available.

5.2 Design

The community is serviced by an Ecodyne (Graver Monoplant) package built in 1991. There is a water reservoir onsite that holds 735 m^3 of water. Chemicals are stored randomly at the site with no central storage area available. There is a diesel operated pump for fire protection and a diesel operated pump for power backup at the water treatment plant.

The following table summarizes the treated water data available from Health Canada, which does not meet GCDWQ:

Date	Location	Exceedances	Result	GCDWQ Limit
Jan. 3, 2001	Water Treatment Plant	Hardness	42 mg/L	80 to 100 mg/L (OG)
		Aluminum	0.186 mg/L	0.1 mg/L (OG)
Oct. 3, 2001	Water Treatment Plant	Hardness	51 mg/L	80 to 100 mg/L (OG)
		Alkalinity	22 mg/L	30 to 500 mg/L (AO)

AO = aesthetic objective, OG = operational guideline

Safety equipment is available although the gas detector is in need of repair. There are some safety concerns, including lack of storage for chemicals, tools and equipment at the water treatment plant.

There is a lab and office but no appropriate maintenance area. Ventilation in the plant has become a problem since the operators switched to Dry Pac, leading to dust problems.

5.3 Operations

The disinfection equipment is functional and hypochlorite is used on the system. The chlorine residual analyzer on site does not work but the levels are checked daily. The colilert unit on site is also used by the operator but not regularly. All manuals are available at the plant.

In the past two years there has been only one-service disruption when the plant ran out of Dry Pac. Hydrants are flushed and maintained on a regular basis. This plant does not have any spare parts available.

5.4 Reporting

Both chlorine residual and turbidity are tested on a daily basis. There are no bacteriological tests being conducted by the operators and the colilert unit is not being used on a regular basis.

There have been no boil water advisories in the past two years and no health outbreaks. Health Canada conducts chemical analysis tests annually on the treated water.

5.5 Operators

s.19(1)

There are two operators available to operate the Sandy Lake water and sewage treatment plant. They are Derek Moskotaywenene and Dennis Linklater. both have received some training. Dennis has been the operator at the plant for and is very familiar with the system; he was away at the time of the OCWA inspection. Derek has worked there for

6.0 Deficiencies in the Community Water Supply

1. The gas detector is in need of repair.
2. Separate chemical storage area is needed and chemicals should be kept in a well-ventilated central location.
3. Sewage tools are stored at the water plant, which could lead to cross contamination.
4. There is no available workshop and insufficient tools on site.
5. The chlorine residual analyzer on site does not work.
6. The colilert kit is available but not used on a regular basis.
7. Service disruptions have occurred in the past when the plant ran out of chemicals.
8. No emergency spare parts are available.
9. Ventilation needs improvement.
10. There is a laboratory and office but no appropriate maintenance area.

7.0 Communal Sewage Facilities (280 houses)

7.1 Effluent Receiver

Effluent is discharged to the Fort Severn River.

7.2 Design

The sewage collection system is relatively new and has four lift stations. The main lift station has 15 hp flight pumps, the others have 7.5 hp pumps. The pumps are pulled once a year during annual discharge. The pumps pump to a two-celled lagoon that is inspected by Health Canada before discharge.

The following table summarizes the sewage data available from Health Canada:

Date	Location	Exceedances
Sept. 2, 1998	Effluent	No Exceedances
Oct. 16, 2001	Effluent	No Exceedances

7.3 Operation

No information is available.

7.4 Reporting

The operator and Health Canada takes samples prior to discharge. There have been no occurrences of disease outbreaks and improper discharge in the past two years. No basements have been flooded and no reports of odours from the community.

7.5 Operators

s.19(1)

There are two operators available to operate the Sandy Lake water and sewage treatment plant. They are Derek Moskotaywenene and Dennis Linklater. both have received some training. Dennis has been the operator at the plant for and is very familiar with the system; he was away at the time of the OCWA inspection. Derek has worked there for

8.0 Deficiencies in the Community Sewage Treatment Facilities

1. There have been several service disruptions due to pump failures.
2. The pumping stations are not routinely maintained and there are no spare service parts available.
3. There have been pump failures, but no sewer backups have occurred.

9.0 Recommendations

- Monitor previous boil water advisories and chemical analyses exceeding GCDWQ to ensure the source of the contamination has been addressed adequately.
- Address capacity issues.
- Repair/replace on-site gas detector.
- Provide additional chemical storage area and ventilation.
- Provide separate storage area for sewage equipment and tools.
- Provide workshop and tools to manage the plant.
- Repair chlorine residual analyzer.
- Repair backup power supply.
- Establish and implement a protocol for taking water samples at the water treatment plant, including raw water samples.
- Develop a comprehensive contingency plan to address operational problems, breakdowns, vacations and illnesses, main breaks, and boil water advisories.
- Implement a training program that can lead to certification of operator.
- Routinely maintain and fix pumping stations to operational standards, which will help prevent pump failures.
- Implement a sewage septic tank inspection program to inspect all septic tanks in the community for proper operations and meeting the required standards.

10.0 Plant Classification

Based upon the Terms of Reference – Appendix I – Plant Classification Guideline developed by Public Works and Government Services Canada and with discussions with the Ontario Ministry of the Environment Classification Group, OCWA classified these plants as follows:

Water Treatment Facility – Class II
Sewage Treatment Facility – Class I

11.0 Overall Community Risk Assessment

Water Category – Medium Risk

- **Medium Risk because of the following:**
  - Chlorine residual analyzer not working properly; and
  - Chemicals not properly stored.

Sewage Category – Medium Risk

- **Medium Risk because of the following:**
  - Storing sewage tools at water treatment plant;
  - No backup power; and
  - Pump problems.

Note: Information within this report is based on discussions with the part time plant operator and a quick visual walkthrough the facilities. No detailed review was undertaken by OCWA.